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ID-00412

MEMORANDUM

TO: Mark Taylor/David Porter, SOUTHDIV
Tonya Barker/Rob Williamson, NAS Memphis
Jack Carmichael, USGS
David Williams, USEPA
Jim Morrison/Jordan English/Clint Willer, TDEC
Brenda Duggar, MSCHD

FROM: Lawson Anderson, E/A&H LA

SUBJECT: CTO-0094; Proposed Drilling Strategy for SWMU 7 and PVC versus Stainless Steel Cost Comparison and Justification; NAS Memphis RFI; Millington, Tennessee

DATE: February 7, 1995

A meeting was held at E/A&H on February 6, 1995 to develop proposed drilling locations and screening depths at SWMU 7. Participants in the meeting were Jack Carmichael of the USGS, Lawson Anderson, Ginny Gray, Joe Matthews, Ben Brantley, Robert Smith, and Darrell Richardson of E/A&H.

PROPOSED MONITORING WELL LOCATIONS

The proposed monitoring well locations were selected based on the results of the DPT, the screening analytical results, and the lithological information collected from the four deep soil borings. The proposed monitoring well locations, depths, and rationales are intended to fill data gaps determined from the screening, to define the extent of volatile contamination, and to better define the multiple potential source areas surrounding SWMU 7. The attached figure depicts the proposed well cluster locations. At each location, the following lithologic units will be screened:

1) Loess
2) Upper fluvial deposits
3) Lower fluvial deposits
4) Upper portion of the Cockfield formation

Based on the lithologic information collected from the deep soil borings, a fine-grained sand unit was encountered at the top of the Cockfield formation followed by a tight clay encountered at approximately 100' below ground surface. Although low parts per billion concentrations of

volatiles were detected below this interval, these detections are suspected to be "carry down" from higher concentrations detected above.

As a result, the groundwater investigation will focus on the upper part of the Cockfield (believed to be hydraulically connected to the base of the fluvial deposits) as the terminating depth of the groundwater investigation. If groundwater contamination is detected in the upper part of the Cockfield, the investigation will be expanded to determine the vertical extent of contamination. Because the upper and lower fluvial deposits are hydraulically connected, surface casing is proposed only through the loess at each well location.

PVC VERSUS STAINLESS STEEL COST COMPARISON

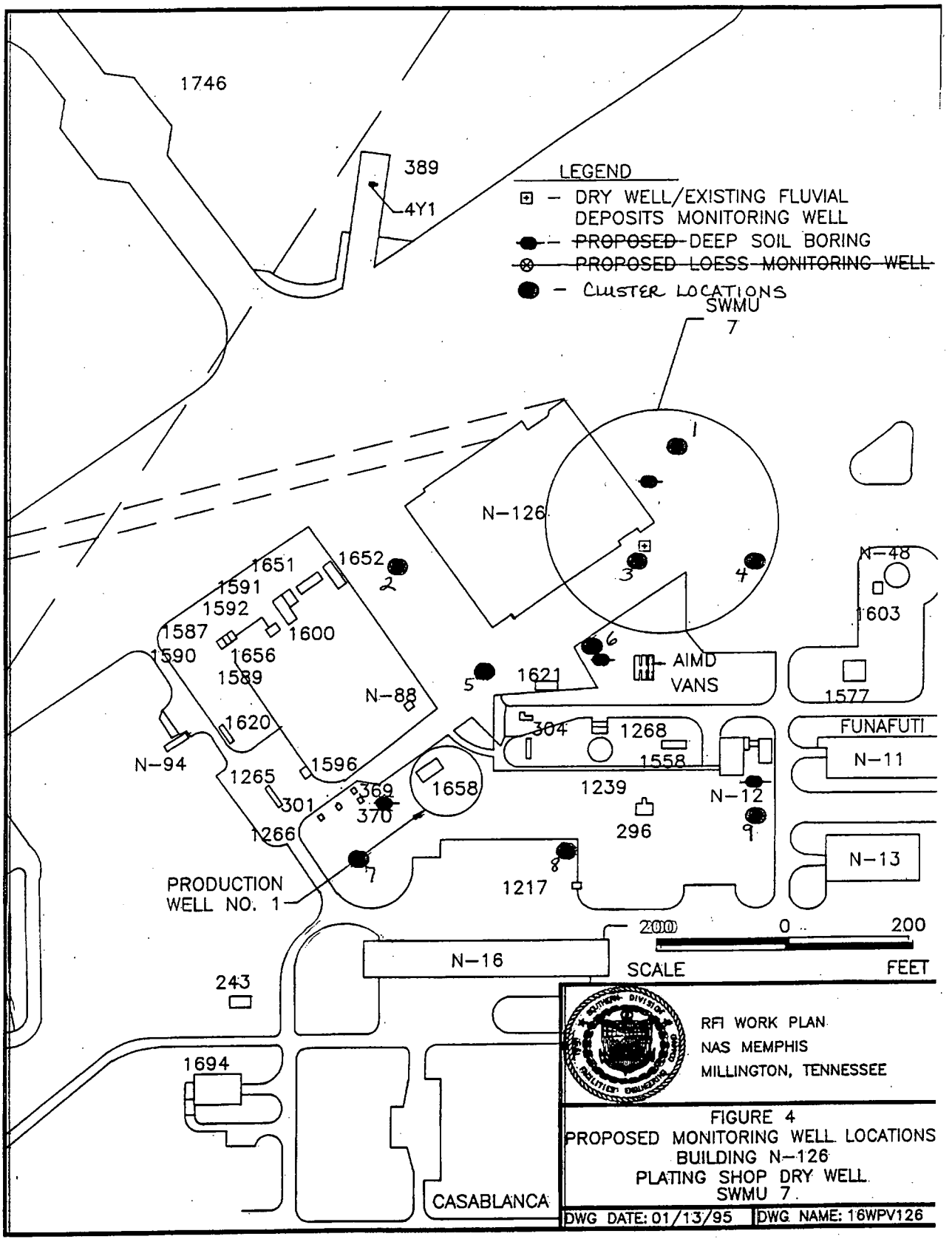
Based on the proposed locations for SWMU 7 above, the following cost comparison has been prepared for polyvinyl chloride (PVC) versus stainless steel well materials of construction:

WELL MATERIALS COST COMPARISON			
Total Linear ft. Proposed	PVC	Stainless Steel	Multiplier
2320	$7,280.00	$41,740.00	5.7X

PVC WELL MATERIALS TECHNICAL JUSTIFICATION

Due to the low concentrations of volatile organics detected thus far (the highest concentration detected is 320 ppb), the apparent lack of a concentrated DNAPL plume, and the large cost factor (5.7 times higher for stainless steel), E/A&H proposes the use of PVC well materials.

At similar TCE groundwater investigations (NPL Sites within Region IV), USEPA ESD has approved and overseen the installation of PVC wells. These sites had higher concentrations of volatile organic compounds than those detected thus far at SWMU 7.


1746
389
4Y1
LEGEND
⊡ – DRY WELL/EXISTING FLUVIAL DEPOSITS MONITORING WELL
~~PROPOSED~~ DEEP SOIL BORING
~~PROPOSED LOESS MONITORING WELL~~
– CLUSTER LOCATIONS
SWMU 7
N–126
1
2
3
4
5
6
1651
1652
1591
1592
1587
1600
1590
1656
1589
N–88
1620
N–94
1596
1265
369
301
370
1658
1266
7
8
1217
1621
AIMD VANS
304
1268
1558
1239
296
N–12
9
N–48
1603
1577
FUNAFUTI
N–11
N–13
PRODUCTION WELL NO. 1
200
0
200
SCALE
FEET
N–16
243
1694
CASABLANCA
RFI WORK PLAN
NAS MEMPHIS
MILLINGTON, TENNESSEE
FIGURE 4
PROPOSED MONITORING WELL LOCATIONS
BUILDING N–126
PLATING SHOP DRY WELL
SWMU 7
DWG DATE: 01/13/95
DWG NAME: 16WPV126